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ABSTRACT

Difficulties associated with the DACUM (Developing a Curriculum) process of the British Columbia Ministry of Education were identified in this study. Using a task analysis of a hunter's job, a set of procedures was developed that can improve the curriculum development process and, to some extent, overcome the difficulties associated with it. The study used a collection of task statements generated in a workshop setting, distributed them to the field for responses, and then clustered these task statements on the basis of field responses. The clusters were then examined according to a behavioral taxonomy. This process allows for the identification of the physical and psychological requirements associated with a cluster. In addition, the process provided information on the relative importance of tasks associated with the job situation. Finally, the process allowed for the field validation of existing DACUM charts and the identification of core competencies and modules for multi-level occupations. Using hunter training task statements, the study identified those tasks that cluster together by using a factor analytic approach. The clusters identified on the basis of field responses were the following: (1) identification and knowledge of species and their habitats; (2) survival; (3) knowledge and activities required in preparation for a hunting trip; (4) legal aspects of hunting; (5) safety; and (6) hunting ethics. In addition, information on the relative importance of all task items was extrapolated and interpreted with respect to implications for curriculum design and instruction as well as for the identification of core competencies and modules for complex work environments. (Author/KC)

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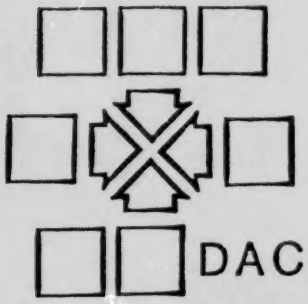

TASK ANALYSIS and VALIDATION PROCEDURES of DACUM.

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ABSTRACT

Difficulties associated with the DACUM (Developing a Curriculum) process are identified in this study. A set of procedures are developed which can improve the process and to some extent overcome the difficulties associated with the process.

Essentially the study uses a collection of task statements generated out of a workshop situation, distributes these to the field for responses and then clusters these task statements on the basis of field responses. The clusters are then examined according to a behavioral taxonomy. This process allows for the identification of the physical and psychological requirements associated with a cluster.

In addition, the process provided information on the relative importance of tasks associated with the job situation.

Finally, the process allows for the field validation of existing DACUM charts and the identification of core competencies and modules for multi-level occupations.

Using Hunter training task statements, the study identifies those tasks that cluster together using a factor analytic approach. The clusters identified on the basis of field responses were:

1. Identification and knowledge of species and their habitats.
2. Survival.
3. Knowledge and activities required in preparation for a hunting trip.

4. Legal aspects of hunting.
5. Safety.
6. Hunting ethics.

In addition, information on the relative importance of all task items was extrapolated and interpreted with respect to implications for curriculum design and instruction.

Implications and further development of the procedures for the identification of core competencies and modules for complex work environments are discussed.

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FIGURES

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1. Flow Chart of Analysis 9

In British Columbia, the DACUM (develop a curriculum) system of curriculum development has been used to make career training more effective. Presently, there are five steps involved in the DACUM process. The first two involve development of the curriculum through a cooperative effort between curriculum specialists and people working in the field. These steps are:

1. Conduct a job analysis.
2. Set performing objectives.
3. Select evaluation instruments.
4. Choose instructional techniques.
5. Organize instructional resources.

To date, the job analysis process involved only task description. The data gathering strategy used was to conduct a workshop of ten to fifteen participants currently working in the occupation to be described. In addition, instructors in the occupational area were asked to participate as advisors and resource persons. The group was led by a workshop coordinator trained in the DACUM process. The workshop coordinator illicits a breakdown of tasks performed in the occupation under consideration.

As a starting point, the group identifies the job title and scope of the occupation. Then broad groupings of employee responsibility called the general areas of competence are listed. After these have been identified, the specific tasks within each broad grouping are identified. The job profile chart is the final product of this exercise. The tasks must be applicable to a broad variety of settings in the occupation because students are not being trained for just one company or work situation.

A final step in the process of job profile preparation is validation by a larger group of educators and practitioners.

After the job profile chart is complete performance objectives for each task are written. These materials are then provided to the course writer, curriculum specialists and instructors. The material forms the basis for planning instruction, organization of resource materials, teaching strategies and evaluation of performance.

There are some difficulties associated with the DACUM process as currently practiced. It is the purpose of this study to identify these areas and provide practitioners of the process with a set of procedures which can improve the process, and to some extent, overcome the difficulties and shortcomings of the process as now practiced. The utility and feasibility of this set of procedures are tested.

The difficulties associated with the DACUM process include the following:

a) The job analysis

The job analysis as practiced is only task description and not task analysis. Having effective means of collecting a body of task data and then classifying relevant aspects of it via a sound taxonomy is necessary for task description. Task description, however, is not sufficient by itself since one also requires a "behavioural understanding (that is, an analysis of the task requirements when viewed in both their physical and psychological settings" (Miller, 1963). Miller suggests that eventually measurement operations and other methodological tools for the elucidation of general factors and relationships that variables share with them are necessary to gain a more complete understanding of man-machine systems, (Miller 1962).

Finley et al (1970) also argue there has been a confusion between task description and task analysis. They state:

> Although most researchers in the field have talked as if they wanted a taxonomy of task behaviour (i.e., a taxonomy describing the tasks presented to the personnel), - hence the term "task" analysis - in reality they have been looking for a taxonomy describing not tasks but the behaviour elicited by those tasks.

Fleishman (1967a, 1967b) has suggested that the goal in task analysis should be to identify the unifying dimensions underlying skilled behaviour.

Finley et al (1970) point out that the interpretation of task data:

> must be based on behavioural dimensional analysis. What would be most desirable is a thorough analysis of the fundamental behavioural dimensions across all man-machine system tasks. (p.8)

b) The DACUM process presently does not elicit a list of tasks along a dimension of underlying skilled behaviour.

The task descriptions are not examined according to a behavioural taxonomy to identify the physical and psychological requirements associated with a unified dimension of tasks. The process does not provide information regarding the relative importance of tasks within a dimension or area of general competence. The relative importance of general areas of competence are also not identified.

c) The task descriptions presently are not extensively or methodologically validated.

d) Core competencies are unable to be identified from task description alone.

e) The process is presently unable to associate tasks to multi-level occupations, i.e. identify what tasks are carried out by what level and to what extent.

The Factor Analytic Approach

A statistical procedure which gives both qualitative and quantitative distinctions can be useful in the analysis of task statements. The procedure that aids in summarizing the interrelationships among a number of variables in a concise and accurate manner to aid in conceptualization is called factor analysis. The goal of factor analysis is to represent a large amount of data in an easily comprehensible way by searching data for possible qualitative and quantitative distinctions.

This approach has been advocated in previous literature on task analysis (for example, Fournier, 1975; Prien and Ronan, 1971). Factor analytic methods can provide a systematic comprehensive approach to task analysis and provide information to overcome the deficiencies of the DACUM method.

In order to test the feasibility and practicality of the factor analytic approach a hunter training DACUM project was examined and subjected to an analysis of this type. It was planned to distribute task statements to a field of practitioners for validation of items and ascertaining relative importance of items. It was expected that after subjecting the resulting data to factor analysis that the task statements would be clustered in dimensions perceived by the field. It was hypothesized that these dimensions would be identifiable by both quantitative and qualitative means.

It was further hypothesized that an examination of the resulting dimensions would reveal that each dimension would contain a number of tasks associated with examples of specific performance types involving specific cognitive processes. Finally, the analysis would provide information on the relative importance of each dimension and the relative importance of tasks within a dimension. These results would provide curriculum developers and instructors with concrete, useful information. It would assist the developer in categorizing the tasks in a meaningful, valid way, and aid in curriculum outlines and writing of curriculum. It would assist in allotting time and emphasis to the curricula. It would allow better presentation and resource allotment to the curriculum by the instructor and provide for a more meaningful evaluation of performance.

Procedure:

Tasks associated with hunter activities were first delineated as course objectives. This task was carried out by information and education officers from the Ministry of the Environment. A curriculum consultant took these objectives and translated them into task statements associated with the course objectives. In both these stages an effort was made to be as comprehensive as possible.

Questionnaire:

A questionnaire was designed using the task statements placed in random order with a five point importance scale attached. The anchors to the scale were very important to not at all important. A score of one was very important and a score of five was not at all important. This simple "Likert type" scale was similar to numerous scales of this type used in factor analytic work in personality and education, e.g. Boshier and Riddell (1978). A copy of the questionnaire and covering letter are provided in Appendix A. Questionnaires were sent to 1164 hunter training instructors.

Data Analysis:

The returned questionnaires were keypunched for computer analysis. The flow of analysis procedures are outlined in figure one. The theoretical analysis was deemed the desirable procedure. The factor analytic model that was used was a common factor analysis. It is assumed that the observed variable is influenced by various determinants some of which are shared by other variables in the set while others are not shared by any other variable. The part of a variable that is influenced by the shared determinants is usually called common, and the part that is influenced by idiosyncratic determinants is usually called unique. Under this assump-

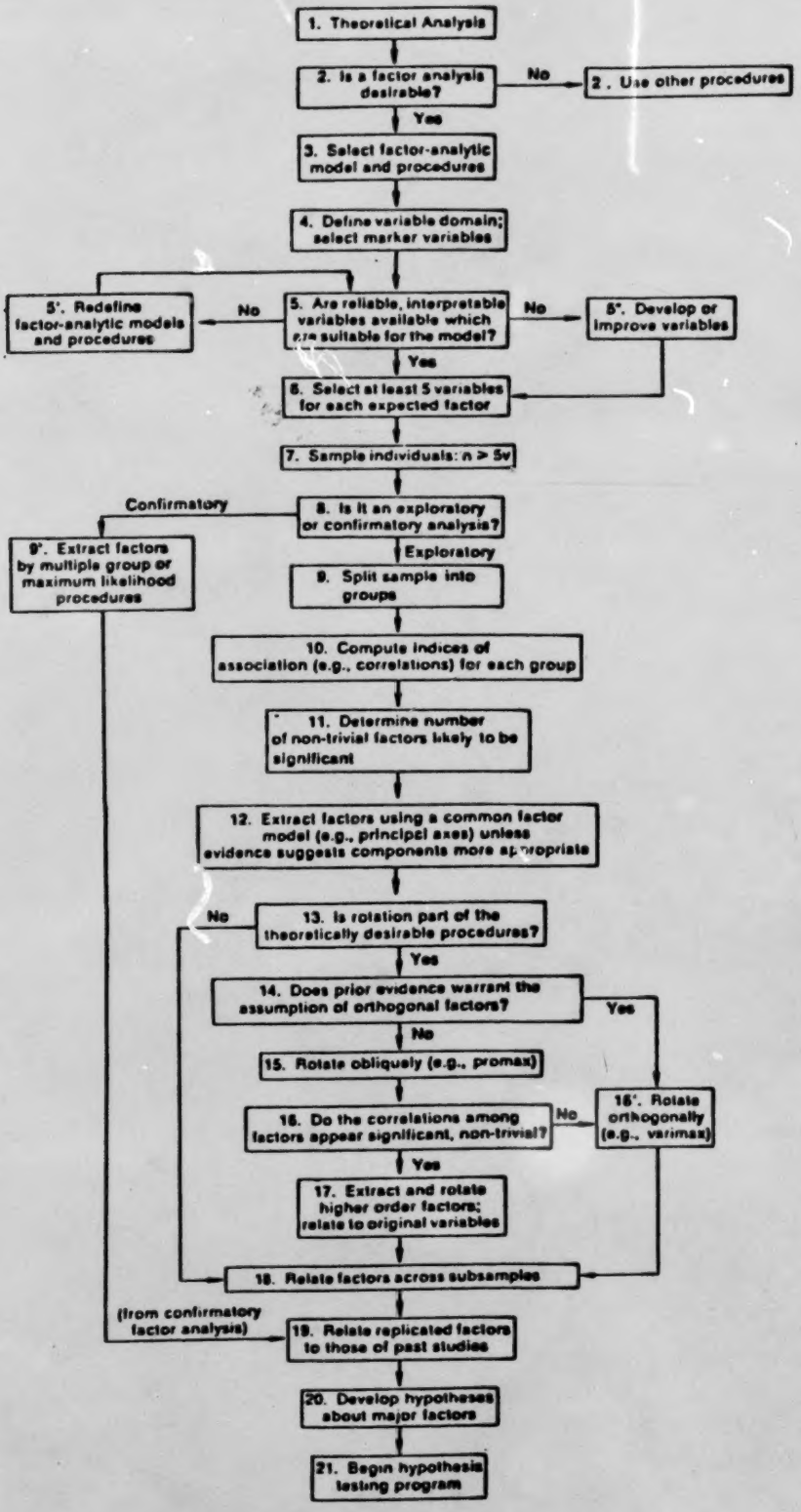
tion, the unique part of a variable does not contribute to relationships among the variables. In addition, the observed correlations must be the result of the correlated variables sharing some of the common determinants. The common determinants will account for all the observed relations in the data and will be smaller in number than the variables. The variable domain are all program relevant items on the questionnaire. No marker variables exist because of lack of previous research in this area. It is, therefore, not known which key variables should be present on the various factors derived. It was not known exactly how many factors to expect a priori. Enough participants in the field were surveyed in order to yield a large enough ratio of respondents to items. Ideally, for stability of measurement with these procedures, five times as many individuals as items or variables is required. Because the aim of the procedure was an exploratory one to determine the number of clusters of task statements that would parsimoniously describe the data, the sample was randomly split into two groups. Indices of association were calculated for each group. The number of non-trivial factors likely to be significant were determined on the basis of the following criteria.

1. A scree test to estimate "rubble" variance was computed.
2. Eigenvalues greater than one were examined from a principal component analysis.
3. Percent of variance accounted for was examined.
4. Loadings of items on factors were examined.

Factor analysis: Rao's Canonical Factoring was used. The factors derived are assumed to be determined by the linear combination of the common variance

portion of the observed variables. Estimation of communality or unique variance becomes the central problem. In addition, Rao's canonical factoring assumes that the given correlation matrix is based upon a sample of cases and asks what the most likely population parameters would be. Since sampling errors do exist it is expected that the resulting factor structure would not exactly fit the data. Factors were orthogonally rotated to varimax criterion in order to separate the factors as much as possible, that is an uncorrelated factor pattern was desired because higher order factors were not desired in this analysis. Factors derived were related across the two samples to check for stability. Internal consistency estimates for factors were calculated. Hypotheses about the major factors were generated. Implications for curriculum and instruction were derived.

Figure 1. Flow Chart of Analysis


1. Theoretical Analysis
2. Is a factor analysis desirable?
No
2'. Use other procedures
Yes
3. Select factor-analytic model and procedures
4. Define variable domain; select marker variables
5'. Redefine factor-analytic models and procedures
No
5. Are reliable, interpretable variables available which are suitable for the model?
No
5". Develop or improve variables
Yes
6. Select at least 5 variables for each expected factor
7. Sample individuals: n > 5v
Confirmatory
8. Is it an exploratory or confirmatory analysis?
9'. Extract factors by multiple group or maximum likelihood procedures
Exploratory
9. Split sample into groups
10. Compute indices of association (e.g., correlations) for each group
11. Determine number of non-trivial factors likely to be significant
12. Extract factors using a common factor model (e.g., principal axes) unless evidence suggests components more appropriate
No
13. Is rotation part of the theoretically desirable procedures?
Yes
14. Does prior evidence warrant the assumption of orthogonal factors?
Yes
No
15. Rotate obliquely (e.g., promax)
16. Do the correlations among factors appear significant, non-trivial?
No
16'. Rotate orthogonally (e.g., varimax)
Yes
17. Extract and rotate higher order factors; relate to original variables
18. Relate factors across subsamples
(from confirmatory factor analysis)
19. Relate replicated factors to those of past studies
20. Develop hypotheses about major factors
21. Begin hypothesis testing program

RESULTS

Response Rate:

1164 questionnaires were sent out. 286 were returned and 131 were non-deliverable. This represented a response rate of 28%.

Data Analysis Results:

Appendix B presents frequency distributions and relevant statistics for each item of the questionnaire.

Table 1 presents means and standard deviations for each task statement in the curriculum area.

Table 2 presents the variable list (short form) with labels.

Table 3 presents the correlation Matrix for the entire 286 cases.

Table 4 presents communalities, eigenvalues, percent of variance for the principal component estimates.

Table 5 presents the rotated factor pattern matrix with salient loadings identified.

Table 6 presents the DACUM derived from the factored field responses.

Table 7 presents the "intuitive" DACUM.

TABLE 1

Means and Standard Deviations for Each Task Statement

Task Statement	Mean	Standard Deviation
Scale: 1 = very important 5 = not important		
Procedures helping injured person	1.62	0.87
Field dressing for animals	2.14	1.04
Demonstrate safe handling of firearms	1.02	0.26
Dismantle and clean firearm	2.13	1.08
Identify Habitats - distribution of game birds	2.53	0.97
Identify safe discharge of firearms	1.10	0.42
Identify characteristics of manual species	2.01	0.89
Reporting unacceptable behaviour	1.81	0.92
Treatment of hypothermia	1.51	0.75
Habitats and distribution of individual species	2.67	0.94
Identify components of outdoor survival	1.52	0.69
Define common Manual terms	2.88	1.00
Identify effect of Man on Birds	2.42	1.04
Identify procedures for buying firearms	2.42	1.17
Define Hunter ethics	1.34	0.63
Identify positive attitudes toward outdoor survival	1.47	0.68
Define outdoor ethics	1.50	0.74
Read regulations for information on zone restrictions and bag limits	1.76	0.97
Apply keys to identification of birds	2.49	1.04
Identify and name game birds of B.C.	2.19	1.05
Identify regulations - outdoor activities	1.99	0.93
Define bird related terms	2.98	0.96
Identify seven enemies of survival	1.61	0.78
Describe basic principles of ballistics and trajectory	2.50	1.10
List ten commandments of firearm safety	1.29	0.61
Identify survival first aid procedures	1.54	0.76

Table 1 cont'd.

Identify legal and non-legal species	1.47	0.77
Define regulations - field dressing	1.47	0.77
Identify special licenses required	2.17	1.04
Make up survival kit	2.04	0.94
List equipment for field trip	2.42	1.02
Practice components of outdoor survival	2.53	1.06
Identify and classify firearms	2.00	0.96
Identify safe game targets	1.44	0.83
Identify protected-endangered birds	1.61	0.82
Apply regulations to principles of wild life management	1.98	0.92
Effect of man on mammals	2.11	.98
Obtain hunting regulations and acts	1.74	0.95
Demonstrate safe discharge of firearms	1.42	0.79
Identify protected mammals of B.C.	1.67	0.87
List preparations for hunting trip	2.35	1.00
Apply key identification of mammals	2.25	1.05
Identify firearm parts	2.40	1.06
Define terms used in regulations	1.89	0.87
Select firearm and ammunition for game	1.79	0.92

TABLE 2

Variable List (Short Form) with Labels

1.VARIABLE LIST

VARIABLES..	LABELS..
INJURED	PROCEDURES HELPING INJURED PERSON
DRESSING	FIELD DRESSING FOR ANIMALS
HANDLING	DEMONSTRATE SAFE HANDLING OF FIREARMS
DSMANTLE	DISMANTLE & CLEAN FIREARM
HABITBRD	ID HABITATS-DISTRIBUTION OF GAMEBIRDS
DSCHARGE	ID SAFE DISCHARGE OF FIREARM
MAMMALSP	ID CHARACTERISTICS OF MAMMAL SPECIES
UNXBEHVR	REPORTING UNACCEPTABLE BEHAVIOUR
HYPOTHRM	TREATMENT OF HYPOTHERMIA
HABITSPC	HABITAT DISTRIBUTION-INDIVIDUAL SPECIES
CMODSURV	COMPONENTS OF OUTDOOR SURVIVAL
MAMLTERM	DEFINE COMMON MAMMAL TERMS
FXMANBRD	IDENTIFY EFFECT OF MAN ON BIRDS
BUYFIREA	ID PROCUEDURES FOR BUYING FIREARMS
HUNTETHC	DEFINE HUNTER ETHICS
PAODSURV	ID POSITIVE ATTITUDE-OUTDOOR SURVIVAL
ODETHICS	DEFINE OUTDOOR ETHICS
BAGLIMIT	ZONE RESTRICTIONS & BAG LIMITS
KEYIDBRD	APPLY KEYS TO IDENTIFICATION OF BIRDS
GAMEBIRD	IDENTIFY & NAME GAMEBIRDS OF B. C.
REGODACT	ID REGULATIONS-OUTDOOR ACTIVITIES
BIRDTERM	DEFINE BIRD RELATED TERMS
ENMYSURV	IDENTIFY SEVEN ENEMIES OF SURVIVAL
BALISTIC	BASIC PRINCIPLES OF BALLISTICS & TRAJ.
TENCOMND	TEN COMMANDMENTS OF FIREARM SAFETY
FIRSTAID	ID SURVIVAL FIRST AID PROCEDURES
LEGLNLGL	IDENTIFY LEGAL & NON-LEGAL SPECIES
REGFDRES	DEFINE REGULATIONS-FIELD DRESSING
SPECLICN	IDENTIFY SPECIAL LICENSES REQUIRED
SURVLKIT	MAKE UP SURVIVAL KIT
EQPFTRIP	LIST EQUIPMENT FOR FIELD TRIP
PRODSURV	PRACTICE COMPONENTS OF OUTDOOR SURVIVAL
IDFIREAR	IDENTIFY & CLASSIFY FIREARMS
SAFEGAME	IDENTIFY SAFE GAME TARGETS
ENDANGER	IDENTIFY PROTECTED-ENDANGERED BIRDS
REGWLDLF	REGULATIONS-PRIN. WILDLIFE MANAGEMENT
FXMANMAM	EFFECT OF MAN ON MAMMALS
HUNTREGU	OBTAIN HUNTING REGULATIONS & ACTS
SFDSCHRG	DEMONSTRATE SAFE DISCHARGE OF FIREARMS
PRTCMAML	IDENTIFY PROTECTED MAMMALS OF B.C.
PREPHUNT	LIST PREPARATIONS FOR HUNTING TRIP

TABLE 3

Correlation Matrix of Task Statements

CORRELATION COEFFICIENTS..

	INJURED	DRESSING	HANDLING	DSMANTLE	HABITBRD	DSCHARGE	MAMMALSP	UNXBEHVR	HYPOTHRM	HABITSPC
INJURED	1.00000	0.17822	0.21109	0.15532	0.20616	0.14336	0.18032	0.23218	0.53701	0.23103
DRESSING	0.17822	1.00000	0.18800	0.15699	0.28035	0.14255	0.33485	0.35580	0.21554	0.33915
HANDLING	0.21109	0.18800	1.00000	0.20368	0.09626	0.65399	0.26974	0.21041	0.26388	0.12548
DSMANTLE	0.15532	0.15699	0.20368	1.00000	0.27028	0.14614	0.14517	0.13220	0.08181	0.18177
HABITBRD	0.20616	0.28035	0.09626	0.27028	1.00000	0.19374	0.52176	0.29223	0.31545	0.67128
DSCHARGE	0.14336	0.14255	0.65399	0.14614	0.19374	1.00000	0.33814	0.33736	0.36119	0.25894
MAMMALSP	0.18032	0.33485	0.26974	0.14517	0.52176	0.33814	1.00000	0.32039	0.33431	0.54652
UNXBEHVR	0.23218	0.35580	0.21041	0.13220	0.29223	0.33736	0.32039	1.00000	0.36025	0.37226
HYPOTHRM	0.53701	0.21554	0.26388	0.08181	0.31545	0.36119	0.33431	0.36025	1.00000	0.37416
HABITSPC	0.23103	0.33915	0.12548	0.18177	0.67128	0.25894	0.54652	0.37226	0.37416	1.00000
CMODSURV	0.47288	0.20802	0.26568	0.08748	0.32298	0.31309	0.33739	0.27061	0.67899	0.41419
MAMLTERM	0.16663	0.25481	0.06390	0.11201	0.47400	0.17277	0.44472	0.34587	0.26817	0.58940
FXMANBRD	0.22337	0.21050	0.16070	0.12302	0.45405	0.21046	0.39178	0.31965	0.38192	0.51120
BUYFIREA	0.16729	0.23536	0.17429	0.27220	0.30305	0.18951	0.18861	0.32564	0.28985	0.31988
HUNTETHC	0.14776	0.25803	0.41632	0.19219	0.23340	0.43008	0.32079	0.34825	0.29834	0.26755
PAODSURV	0.38012	0.19711	0.31043	0.17097	0.29648	0.35207	0.36543	0.28974	0.56920	0.33830
ODETHICS	0.16254	0.25181	0.33386	0.20482	0.28649	0.35117	0.31776	0.35770	0.35204	0.26727
BAGLIMIT	0.19867	0.31358	0.27951	0.18766	0.25318	0.32420	0.26401	0.43098	0.30148	0.33423
KEYIDBRD	0.23330	0.24002	0.06939	0.18121	0.50307	0.19466	0.40191	0.37058	0.27974	0.48437
GAMEBIRD	0.10202	0.22170	0.13251	0.12406	0.56342	0.19265	0.47447	0.24609	0.25326	0.46697
REGODACT	0.29699	0.35857	0.15077	0.20959	0.32721	0.21297	0.42468	0.35226	0.34161	0.40889
BIRDTERM	0.18572	0.20491	0.07265	0.16349	0.50134	0.20048	0.45181	0.30959	0.32056	0.63037
ENMYSURV	0.48798	0.14216	0.24576	0.10711	0.29627	0.33794	0.37623	0.29302	0.55432	0.35518
BALISTIC	0.19153	0.35164	0.13742	0.11512	0.36998	0.31314	0.31754	0.39898	0.34705	0.46871
TENCOMND	0.16705	0.10601	0.35750	0.16143	0.25210	0.39584	0.30824	0.30315	0.28354	0.31683
FIRSTAID	0.43675	0.19001	0.21300	0.16578	0.27174	0.18574	0.26448	0.29873	0.45864	0.23472
LEGLNLGL	0.29039	0.29599	0.30711	0.27220	0.31232	0.24764	0.30183	0.34330	0.31066	0.34051
REGFDRES	0.25976	0.53202	0.17175	0.09344	0.32175	0.21773	0.33855	0.35549	0.32082	0.42996
SPECLICN	0.18230	0.31029	0.23217	0.19701	0.31735	0.23039	0.26836	0.31511	0.34675	0.30153
SURVLKIT	0.38761	0.27355	0.08670	0.21471	0.33370	0.10888	0.25103	0.33305	0.44471	0.38329
EQPFTRIP	0.31760	0.33370	0.08552	0.12308	0.39500	0.17975	0.37954	0.34750	0.46074	0.44182
PRODSURV	0.35363	0.22119	0.08745	0.20708	0.29700	0.11021	0.22510	0.22221	0.35763	0.32233
IDFIREAR	0.16349	0.21337	0.25860	0.25336	0.33890	0.27587	0.30390	0.24934	0.30887	0.37061
SAFEGAME	0.19160	0.23550	0.31699	0.18080	0.20782	0.33677	0.25686	0.22034	0.31652	0.26115
ENDANGER	0.24679	0.24689	0.29776	0.20507	0.36350	0.30139	0.37047	0.30438	0.40395	0.40164
REGWLDLF	0.22263	0.39431	0.14171	0.15167	0.40828	0.22532	0.34795	0.40809	0.34593	0.42928
FXMANMAM	0.22072	0.28507	0.17328	0.12516	0.41032	0.26800	0.40368	0.23572	0.32250	0.51876
HUNTREGU	0.23462	0.31841	0.21166	0.16767	0.28750	0.28711	0.36703	0.35025	0.30726	0.36879
SFDSCHRG	0.13752	0.28262	0.30018	0.24722	0.09903	0.37120	0.17963	0.24533	0.19975	0.15085
PRTCMAML	0.27606	0.24572	0.26108	0.24903	0.39583	0.23023	0.42517	0.29698	0.36771	0.39842
PREPHUNT	0.30036	0.38705	0.11155	0.20692	0.38296	0.24753	0.31884	0.32598	0.42120	0.45941
KEYIDMAM	0.18505	0.31340	0.12358	0.14563	0.42151	0.25334	0.44119	0.35923	0.30590	0.50358

	CMODSURV	MAMLTERM	FXMANBRD	BUYFIREA	HUNTETHC	PAODSURV	ODETHICS	BAGLIMIT	KEYIDBRD	GAMEBIRD
FXMANMAM	0.41404	0.48222	0.71939	0.24976	0.37616	0.40019	0.42332	0.19287	0.39917	0.35492
HUNTREGU	0.30918	0.33440	0.33651	0.42384	0.37419	0.38625	0.28850	0.50920	0.35595	0.31099
SFDSCHRG	0.18475	0.12484	0.16818	0.29116	0.35993	0.23179	0.29692	0.26685	0.15722	0.12937
PRTCMAML	0.30860	0.31020	0.45054	0.34315	0.31771	0.33899	0.35751	0.42360	0.39810	0.39753
PREPHUNT	0.43697	0.36673	0.33836	0.39639	0.30011	0.40504	0.27505	0.32312	0.37285	0.34295
KEYIDMAM	0.27934	0.47446	0.42259	0.31748	0.32421	0.34193	0.33975	0.36022	0.65353	0.45848
IDGUNPRT	0.29794	0.48706	0.30305	0.34958	0.34312	0.37089	0.36914	0.23775	0.37900	0.35836
REGUTERM	0.27744	0.37742	0.38609	0.44930	0.41957	0.35723	0.33123	0.46224	0.41960	0.35685
FIREAMMO	0.30389	0.25008	0.33017	0.45861	0.39149	0.37107	0.32982	0.40740	0.31676	0.29569

	REGODACT	BIRDTERM	ENMYSURV	BALISTIC	TENCOMND	FIRSTAID	LEGLNLGL	REGFDRES	SPECLICN	SURVLKIT
INJURED	0.29699	0.18572	0.48798	0.19153	0.16705	0.43675	0.29039	0.25976	0.18230	0.38761
DRESSING	0.35857	0.20491	0.14216	0.35164	0.10601	0.19001	0.29599	0.53202	0.31029	0.27355
HANDLING	0.15077	0.07265	0.24576	0.13742	0.35750	0.21300	0.30711	0.17175	0.23217	0.08670
DSMANTLE	0.20959	0.16349	0.10711	0.11512	0.16143	0.16578	0.27220	0.09344	0.19701	0.21471
HABITBRD	0.32721	0.50134	0.29627	0.36998	0.25210	0.27174	0.31232	0.32175	0.31735	0.33370
DSCHARGE	0.21297	0.20048	0.33794	0.31314	0.39584	0.18574	0.24764	0.21773	0.23039	0.10888
MAMMALSP	0.42468	0.45181	0.37623	0.31754	0.30824	0.26448	0.30183	0.33855	0.26836	0.25103
UNXBEHVR	0.35226	0.30959	0.29302	0.39898	0.30315	0.29873	0.34330	0.35549	0.31511	0.33305
HYPOTHRM	0.34161	0.32056	0.55432	0.34705	0.28354	0.45864	0.31066	0.32082	0.34675	0.44471
HABITSPC	0.40889	0.63037	0.35518	0.46871	0.31683	0.23472	0.34091	0.42996	0.30153	0.38329
CMODSURV	0.35077	0.32482	0.63328	0.41619	0.34039	0.45875	0.27235	0.34741	0.27175	0.48047
MAMLTERM	0.35231	0.66581	0.28289	0.41498	0.29766	0.23180	0.29377	0.37909	0.22735	0.28742
FXMANBRD	0.41154	0.56282	0.36110	0.38280	0.29287	0.35483	0.31757	0.38872	0.35085	0.27329
BUYFIREA	0.35206	0.30279	0.24628	0.31543	0.28215	0.24976	0.33726	0.32861	0.49069	0.24261
HUNTETHC	0.35272	0.27178	0.34041	0.28393	0.38604	0.30787	0.38556	0.28493	0.36156	0.12589
PAODSURV	0.35728	0.33902	0.53400	0.33096	0.32603	0.44514	0.32836	0.31316	0.38050	0.43992
ODETHICS	0.33981	0.34460	0.34094	0.29601	0.37940	0.38129	0.38034	0.29187	0.33682	0.16783
BAGLIMIT	0.44220	0.26002	0.27138	0.29823	0.25264	0.25337	0.49000	0.35584	0.44439	0.22658
KEYIDBRD	0.41633	0.56547	0.33183	0.39299	0.25912	0.29105	0.30891	0.45072	0.33113	0.24629
GAMEBIRD	0.32771	0.47117	0.29994	0.33915	0.20631	0.28921	0.28180	0.37623	0.38882	0.21671
REGODACT	1.00000	0.46291	0.34474	0.37600	0.26246	0.28557	0.44181	0.50188	0.42957	0.30421
BIRDTERM	0.46291	1.00000	0.38103	0.48612	0.32811	0.29987	0.39997	0.44933	0.30807	0.28926
ENMYSURV	0.34474	0.38103	1.00000	0.45290	0.42238	0.43481	0.29545	0.29678	0.25615	0.40794
BALISTIC	0.37600	0.48612	0.45290	1.00000	0.38574	0.32782	0.37694	0.49884	0.36684	0.32082
TENCOMND	0.26246	0.32811	0.42238	0.38574	1.00000	0.39074	0.31420	0.27057	0.24077	0.18670
FIRSTAID	0.28557	0.29987	0.43481	0.32782	0.39074	1.00000	0.32138	0.28570	0.50929	0.34375
LEGLNLGL	0.44181	0.39997	0.29545	0.37694	0.31420	0.32138	1.00000	0.44268	0.43870	0.24720
REGFDRES	0.50188	0.44933	0.29678	0.49884	0.27057	0.28570	0.44268	1.00000	0.38333	0.35603
SPECLICN	0.42957	0.30807	0.25615	0.36684	0.24077	0.50929	0.43870	0.38333	1.00000	0.31759
SURVLKIT	0.30421	0.28926	0.40794	0.32082	0.18670	0.34375	0.24720	0.35603	0.31759	1.00000

	PREPHUNT	KEYIDMAM	IDGUNPRT	REGUTERM	FIREAMMO
KEYIDBRD	0.37285	0.65353	0.37900	0.41960	0.31676
GAMEBIRD	0.34295	0.45848	0.35836	0.35685	0.29569
REGODACT	0.42694	0.39698	0.27441	0.44309	0.36692
BIRDTERM	0.42621	0.56018	0.47637	0.38601	0.30434
ENMYSURV	0.37723	0.31216	0.29998	0.30774	0.33446
BALISTIC	0.49751	0.46226	0.50309	0.41095	0.41766
TENCOMND	0.32757	0.37844	0.35931	0.28652	0.29314
FIRSTAID	0.31545	0.28364	0.26777	0.30067	0.25604
LEGLNLGL	0.34247	0.35776	0.27834	0.44101	0.47853
REGFDRES	0.48482	0.47438	0.39673	0.45957	0.33661
SPECLICN	0.33040	0.35345	0.28675	0.46188	0.43733
SURVLKIT	0.51461	0.30964	0.26884	0.25727	0.26989
EQPFTRIP	0.62457	0.46096	0.40069	0.41984	0.38870
PRODSURV	0.46204	0.29091	0.23304	0.24636	0.33817
IDFIREAR	0.36092	0.40811	0.51854	0.46400	0.49936
SAFEGAME	0.34893	0.25709	0.29661	0.37787	0.35910
ENDANGER	0.37635	0.43151	0.27732	0.43395	0.45699
REGWLDLF	0.46317	0.43564	0.41158	0.43299	0.37121
FXMANMAM	0.47783	0.50653	0.41177	0.36090	0.31935
HUNTREGU	0.46650	0.50664	0.41124	0.53336	0.46104
SFDSCHRG	0.31752	0.27875	0.34175	0.32655	0.48637
PRTCMAML	0.41901	0.52254	0.27318	0.41154	0.45391
PREPHUNT	1.00000	0.52009	0.53198	0.39506	0.40373
KEYIDMAM	0.52009	1.00000	0.50023	0.45347	0.32075
IDGUNPRT	0.53198	0.50023	1.00000	0.42699	0.42083
REGUTERM	0.39506	0.45347	0.42699	1.00000	0.57107
FIREAMMO	0.40373	0.32075	0.42083	0.57107	1.00000

DETERMINANT OF CORRELATION MATRIX = 0.0000000(0.10406155E-11)

TABLE 4

Communalities, Eigenvalues and Percent of Variance for Principal Component Estimates

VARIABLE	EST COMMUNALITY	FACTOR	EIGENVALUE	PCT OF VAR	CUM PCT
INJURED	0.50969	1	15.96737	35.5	35.5
DRESSING	0.47527	2	2.63132	5.8	41.3
HANDLING	0.56502	3	2.31376	5.1	46.5
DSMANTLE	0.35041	4	1.80712	4.0	50.5
HABITBRD	0.60311	5	1.48384	3.3	53.8
DSCHARGE	0.60619	6	1.29867	2.9	56.7
MAMMALSP	0.53543	7	1.23096	2.7	59.4
UNXBEHVR	0.45212	8	1.13475	2.5	61.9
HYPOTHRM	0.63548	9	1.05680	2.3	64.3
HABITSPC	0.67873	10	0.96484	2.1	66.4
CMODSURV	0.64485	11	0.87823	2.0	68.4
MAMLTERM	0.57604	12	0.82038	1.8	70.2
FXMANBRD	0.69062	13	0.80913	1.8	72.0
BUYFIREA	0.49797	14	0.77563	1.7	73.7
HUNTETHC	0.67702	15	0.75582	1.7	75.4
PAODSURV	0.59157	16	0.67024	1.5	76.9
ODETHICS	0.64697	17	0.64263	1.4	78.3
BAGLIMIT	0.56086	18	0.62251	1.4	79.7
KEYIDBRD	0.71817	19	0.60911	1.4	81.1
GAMEBIRD	0.62955	20	0.57038	1.3	82.3
REGODACT	0.51559	21	0.56036	1.2	83.6
BIRDTERM	0.66316	22	0.51662	1.1	84.7
ENMYSURV	0.58374	23	0.50258	1.1	85.8
BALISTIC	0.56467	24	0.46672	1.0	86.9
TENCOMND	0.44210	25	0.44122	1.0	87.8
FIRSTAID	0.53911	26	0.42505	0.9	88.8
LEGLNLGL	0.58075	27	0.39256	0.9	89.7
REGFDRES	0.56204	28	0.36924	0.8	90.5
SPECLICN	0.58830	29	0.35561	0.8	91.3
SURVLKIT	0.57166	30	0.34885	0.8	92.0
EQPFTRIP	0.63849	31	0.33711	0.7	92.8
PRODSURV	0.52540	32	0.31094	0.7	93.5
IDFIREAR	0.56243	33	0.30526	0.7	94.2
SAFEGAME	0.41075	34	0.29509	0.7	94.8
ENDANGER	0.62889	35	0.28065	0.6	95.4
REGWLDLF	0.51713	36	0.25663	0.6	96.0
FXMANMAM	0.72166	37	0.24590	0.5	96.6
HUNTREGU	0.60997	38	0.23746	0.5	97.1
SFDSCHRG	0.46432	39	0.22411	0.5	97.6
PRTCMAML	0.68655	40	0.21281	0.5	98.1
PREPHUNT	0.62382	41	0.20103	0.4	98.5
KEYIDMAM	0.66262	42	0.19317	0.4	98.9
IDGUNPRT	0.64325	43	0.16744	0.4	99.3
REGUTERM	0.56280	44	0.15824	0.4	99.7
FIREAMMO	0.57037	45	0.15199	0.3	100.0

CONVERGENCE REQUIRED 5 ITERATIONS

TABLE 5

Varimax Rotated Factor Matrix

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6
INJURED	0.06899	0.61255	0.04205	0.18938	0.07094	-0.01261
DRESSING	0.21479	0.09826	0.43468	0.16598	0.07849	0.03423
HANDLING	-0.02950	0.13207	0.06753	0.21017	0.70833	0.14852
DSMANTLE	0.10176	0.03819	0.21489	0.17892	0.13354	0.06068
HABITBRD	0.65455	0.18868	0.12888	0.15472	0.05421	0.03464
DSCHARGE	0.12925	0.14178	0.16836	0.09459	0.75801	0.11950
MAMMALSP	0.54419	0.19058	0.09880	0.19833	0.25972	0.05140
UNXBEHVR	0.27298	0.19253	0.30063	0.18991	0.19483	0.13772
HYPOTHRM	0.18474	0.70274	0.10553	0.18206	0.21521	0.10712
HABITSPC	0.72375	0.23262	0.20049	0.12177	0.12995	-0.02894
CMODSURV	0.22885	0.74988	0.11928	0.06143	0.20528	0.11974
MAMLTERM	0.69196	0.11234	0.22426	0.03241	0.05398	0.04840
FXMANBRD	0.58543	0.26738	0.06492	0.21763	0.02350	0.31225
BUYFIREA	0.17195	0.12970	0.41903	0.30189	0.03127	0.32403
HUNTETHC	0.17450	0.09282	0.22239	0.22336	0.34439	0.70154
PAODSURV	0.20150	0.54626	0.18850	0.16787	0.20145	0.38325
ODETHICS	0.24984	0.17865	0.14960	0.19138	0.24707	0.65960
BAGLIMIT	0.16161	0.11297	0.28060	0.50167	0.17906	0.16512
KEYIDBRD	0.61430	0.10529	0.18774	0.25173	-0.03139	0.26297
GAMEBIRD	0.56690	0.11420	0.11646	0.24574	0.00632	0.24477
REGODACT	0.34506	0.23837	0.29709	0.37067	0.03805	0.12175
BIRDTERM	0.73985	0.16031	0.19336	0.14672	0.03999	0.07394
ENMYSURV	0.26095	0.61195	0.10492	0.09810	0.24101	0.14104
BALISTIC	0.41348	0.24570	0.44015	0.12071	0.17600	0.02806
TENCOMND	0.25929	0.19245	0.18030	0.16380	0.39164	0.15824
FIRSTAID	0.17217	0.47558	0.09339	0.24614	0.08365	0.21563
LEGLNLGL	0.21124	0.15755	0.24172	0.60346	0.17157	0.09479
REGFDRES	0.38721	0.20561	0.40152	0.27800	0.05127	0.04042
SPECLICN	0.16200	0.21165	0.35229	0.46416	0.03581	0.20545
SURVLKIT	0.19121	0.59219	0.38024	0.06043	-0.07937	-0.06080
EQPFTRIP	0.35665	0.50198	0.50060	0.04399	-0.06500	0.05024
PRODSURV	0.18153	0.47044	0.36625	0.12160	-0.09356	0.02837
IDFIREAR	0.25404	0.14357	0.42704	0.23130	0.17965	0.27049
SAFEGAME	0.08602	0.20341	0.30533	0.31862	0.24163	0.21040
ENDANGER	0.27165	0.24224	0.15160	0.63196	0.16298	0.17285
REGWLDLF	0.36972	0.21884	0.43027	0.17111	0.00705	0.28530
FXMANMAM	0.53828	0.27199	0.24509	0.15955	0.07180	0.20152
HUNTREGU	0.24817	0.16774	0.46948	0.42455	0.11264	0.10122
SFDSCHRG	-0.00388	0.05675	0.45288	0.24425	0.30366	0.11069
PRTCMAML	0.34944	0.18663	0.11863	0.70973	0.12780	0.02182
PREPHUNT	0.33700	0.37042	0.55806	0.14368	0.04130	0.00459
KEYIDMAM	0.57377	0.10757	0.34783	0.27445	0.07075	0.07660
IDGUNPRT	0.44211	0.07058	0.53830	-0.00440	0.21854	0.12728
REGUTERM	0.25888	0.10442	0.47378	0.36986	0.10084	0.20391
FIREAMMO	0.11067	0.17806	0.48395	0.39692	0.20099	0.15155

*Underlined are salient loadings.

TABLE 6

Province of British Columbia

SKILL PROFILE CHART

Developed by:
Program Research and Development
Post Secondary Division
Ministry of Education

SCALE USED: 1 = most important 5 = least important

1. FIREARM SAFETY 1.32	1. Demonstrate Safe Handling of Firearms 1.01	2. - OPTIONAL - Demonstrate Safe Discharge of Firearms 1.06	3. List Ten Commandments of Firearm Safety 1.25	4. Identify Safe Discharge of Firearms 1.96							
2. HUNTING ETHICS 1.38	1. Define Hunter Ethics 1.30	2. Define Outdoor Ethics 1.46									
3. LEGAL ASPECTS OF HUNTING 1.56	1. Identify Safe Cone Targets 1.38	2. Differentiate between Legal and Non-Legal Species 1.43	3. Identify Protected and Endangered Birds of B.C. 1.57	4. Identify Protected Mammals of B.C. 1.62	5. Identify Special Licenses Required 1.80	6. Read Regulations for Info on Zone Restrictions and Bag Limits 1.71					
4. SURVIVAL KNOWLEDGE AND PROCEDURES 1.65	1. Identify Survival First Aid Procedures 1.26	2. Identify Positive Attitudes for Outdoor Survival 1.43	3. Identify Components of Outdoor Survival 1.47	4. Identify Procedures for Treatment of Hypothermia 1.67	5. Identify the Seven Enemies of Survival 1.55	6. Identify Procedures for Getting Help 1.90	7. Make Up Survival Kit 2.01	8. - OPTIONAL - Practice Components of Outdoor Survival 2.46			
5. PREPARATIONS FOR HUNTING 2.03	1. Obtain Hunting Regulations and Acts 1.68	2. Select Firearm and Ammunition for Game 1.69	3. Define Terms Used in Regulations 1.79	4. Identify Procedures for Observing, Recording & Reporting Unacceptable Behaviour 1.82	5. Identify Regulations Pertaining to Outdoor Activities 1.92	6. Apply Regulations to Principles of Wild Life Management 1.93	7. Identify and Classify Firearms 1.96	8. Define Regulations that Apply to Field Dressing 2.08			
	9. Dismantle and Clean Firearm 2.10	10. List Preparations for Hunting Trip 2.29	11. Identify Firearm Parts 2.33	12. Identify Procedures for Purchasing Firearms 2.36	13. List Type of Equipment Required for Field Trip 2.37	14. Describe Basic Principles of Ballistics and Trajectory 2.43					
6. IDENTIFICATION OF SPECIES AND THEIR HABITATS 2.38	1. Identify Characteristics of Individual Mammal Species 1.94	2. Describe Effect of Man on Mammals 2.03	3. Identify and Name Game Birds of B.C. 2.14	4. Apply Keys to Identification of Mammals 2.18	5. Identify Effect of Man on Birds 2.36	6. Apply Keys to Identification of Birds 2.43	7. Identify Habitats and Distribution of Game Birds in B.C. 2.51	8. Identify Habitat Distribution of Individual Species 2.60	9. Define Common Mammal Terms 2.81	10. Define Terms Related to Birds 2.90	

TABLE 7

Province of British Columbia

CONSERVATION AND OUTDOOR RECREATION EDUCATION (C.O.R.E.)

SKILL PROFILE CHART

Developed by:
Program Research and Post Secondary Division
Ministry of Education

Plan Safe Ethical Field Trips 1	Define Outdoor Ethics	Define Hunter Ethics	List Type Of Equipment Required For Field Trip	List Preparations For Hunting Trip	Make Up Survival Kit	List Procedures For Safe Efficient Field Dressing For Animals						
Read And Apply Regulations To Wild Life Management 2	Identify Regulations Pertaining To Outdoor Activities	Obtain Hunting Regulations And Acts	Define Terms Used In Regulations	Read Regulations For Information On Zone Restrictions And Bag Limits	Apply Regulations To Principles Of Wild Life Management	Identify Special Licenses Required	Identify Procedures For Observing, Recording And Reporting Unacceptable Behaviour		Define Regulations That Apply To Field Dressing			
Identify Features, Habits & Distribution Of Game Mammals In BC 3	Define Common Mammal Terms	Apply Keys To Identification Of Mammals	Identify Charactoristics Of Individual Mammal Species	Identify Habitat Distribution Of Individual Species	Identify Protected Mammals Of BC	Describe Effect Of Man On Mammals						
Identify Features, Habits & Distribution Of Waterfowl, Upland Game And Raptorial Birds In BC 4	Define Terms Related To Birds	Apply Keys To Identification Of Birds	Identify And Name Game Birds Of BC	Identify Habitats And Distribution Of Game Birds In BC	Differentiate Between Legal And Non-Legal Species	Identify Protected & Endangered Birds Of BC	Identify Effect Of Man On Birds					
Identify Safe Use Of Firearms 5	List Ten Commandments Of Firearm Safety	Identify Procedures For Purchasing Firearms	Identify And Classify Firearms	Identify Firearm Parts	Dismantle And Clean Firearm	Demonstrate Safe Handling Of Firearms	Describe Basic Principles Of Ballistics And Trajectory	Identify Safe Discharge Of Firearms	--OPTIONAL-- Demonstrate Safe Discharge of Firearms	Select Firearm And Ammunition For Game	Identify Safe Game Targets	
Identify Survival And First-Aid Procedures For Field Injuries 6	Identify Positive Attitudes For Outdoor Survival	Identify The Seven Enemies Of Survival	Identify Components Of Outdoor Survival	--OPTIONAL-- Practice Components Of Outdoor Survival	Identify Survival First-Aid Procedures	Identify Procedures For Treatment Of Hypothermia	Identify Procedures For Getting Help					

Demographics

An examination of the results indicated that for the entire group of respondents over two-thirds held a B.C. hunting license for over ten years.

64% of the respondents indicated they were members of an outdoor club sponsoring hunting but about 40% of the respondents indicated they were members of a club not sponsoring hunting. It appears that some respondents (about 4%) responded to both these items.

Most of the respondents (34.6%) were in the 31 to 40 years age group. About half of the respondents were over 30 years of age.

Indices of Association

An examination of the means and standard deviations of the two halves of the sample on task statements revealed a high degree of similarity. A correlation matrix of task statements was generated for each of the split half samples. For the most part correlations were very similar across the samples. The frequency printout of variables distributions confirmed that the assumption of multivariate normality was reasonable and factoring could be carried out.

Relative Importance of Items

Because very high importance was rated a 1 and low importance was rated a 5 the lowest mean rating would represent very high importance on a task. An arbitrary division of items on the relative importance scale would result

in the following:

Items considered most important

(rating 1.0 to 1.4)

. demonstrating safe handling of firearms.

. identifying safe discharge of firearms.

. ten commandments of firearm safety.

. identify survival first aid procedures.

. demonstrate safe discharge of firearms.

. identify safe game targets.

. define hunter ethics.

. identify legal and non-legal species.

. identify positive attitudes to outdoor survival.

. define outdoor ethics.

. components of outdoor survival.

. treatment of hypothermia.

Each of the above task statements were considered to be very important elements in hunter training. The items listed above also exhibited standard deviations less than 1.0 indicating a high consensus among the respondees on the ratings of these items.

Items considered important

(Ratings 1.5 to 2.00)

. identify seven enemies of survival.

. identify protected-endangered birds.

. procedures helping injured persons.

. identify protected mammals of B.C.

. identify special licenses required.

. obtain hunting regulations and acts.

. select firearm and ammunition for game.

. define terms used in regulations.

. zone restrictions and bag limits.

. identify and classify firearms.

. regulations and principles of wild life management.

. reporting unacceptable behaviour.

. identify characteristics of manual species.

These items are considered to be important but the results indicate that they are less important relatively speaking than the group rated 1.0 to 1.4 above. An examination of the standard deviation of these items indicate the standard deviations to be around one unit. This indicates a somewhat greater diversity in the rating of these items.

Items on the lower end of the importance dimension include the following. (rating above 2.0).

. field dressing for animals.

. dismantle and clean firearm.

. identify habits and distribution of game birds.

. habitat distribution - individual species.

. define common mammal terms.

. identify effect of man on birds.

. identify procedures for buying firearms.

. apply keys to identification of birds.

. identify and name game birds of B.C.

. define bird related terms.

. basic principles of ballistics and trajectory.

. define regulations - field dressing.

. make-up survival kit.

. list equipment for field trip.

. practice components of outdoor survival.

. effect of man on mammals.

. list preparations for hunting trip.

. apply key identification of mammals.

. identify firearm parts.

These items are listed as having a lower level of importance. The standard deviations on these items are usually greater than one indicating less consensus and more variability of response in the rating of these items on the importance dimension.

The results of the correlation analysis produced a 45 by 45 item matrix the principal component analysis yielded 45 eigenvalues that were subjected to a "scree" test (Cattel, 1966) the results were not unequivocal but this test and the use of other criteria (e.g. Guttman's 1954 lower bound for estimating the number of factors and significant variance unaccounted for) indicated that 6 factors appeared reasonable. A 6 factor solution accounted for approximately 57% of the total variance.

Results of the Factor Analysis

The 6 factor solution identified the clusters of variables that conceptually belong together. The items that have salient loadings on the first factor are concerned with the identification and knowledge of species and their habitats. The items loading very high on this dimension are:

. defining bird related terms.

. habitat distribution individual species.

. define common mammal terms.

. identify habitats - distribution of game birds.

. apply keys to identification of birds.

. identify effect of man on birds.

. effect of man on mammals.

. identify and name gamebirds of B.C.

. apply key identification of mammals.

The cognitive process that permeate the tasks in this dimension are related to perceptual activities and mediational activities. The performance associated with these processes are:

a. searching for and receiving information.

b. identifying objects, actions and events.

c. information processing.

Under a. the examples of behaviour are mainly observation.
Under b. the examples of behaviour are locating, discriminating and identification.
Under c. the examples of behaviour are categorization and itemization.

As a consequence the curriculum could be organized to include these tasks in one unit. The curriculum and instruction would require a variety of visual aides, discrimination and identification tasks and test questions concerned with

identification of species and their categorization. The relatively low importance these items were rated indicates that the evaluation of the performance may not need to set stringent criteria, i.e. the pass/fail cut-off point can be lower than on other areas of curriculum knowledge.

The items loading on the second factor pertain to survival. Task statements that loaded high on this dimension are:

. identify components of outdoor survival.

. identify procedures for treatment of hypothermia.

. procedures helping injured person.

. identify seven enemies of survival.

. make-up survival kit.

. identify positive attitudes for outdoor survival.

. identify survival first aid procedures.

The cognitive processes that permeate the tasks in this dimension are perceptual, mediational, communication and motor. The associated performance types under the perceptual process are searching for and receiving information and identifying objects, actions, events. The specific examples of behaviour include detection, inspection, observation, scanning and survey activities. Other perceptual process behaviours in this group include identification, discrimination and locating.

The mediational process involves performance types of information processing, problem solving and decision-making. The specific behaviours include categorizing, itemizing, translating, analyzing, comparing, estimating, choosing and planning. The communication process involved in this dimension include behaviours of advising, answering, directing, informing, instructing, transmitting and requesting.

The motor process involves use of both simple and complex performance and includes behaviour of activating, closing, connecting, moving, pressing, joining, setting, adjusting, tracking and regulating.

The relative importance rating of these activities indicates that the evaluation of the performance would require a high degree of proficiency to be required. The criteria should be fairly stringent and the pass/fail cut-off should be set fairly high relative to other curriculum areas.

The third factor has task statements associated with knowledge and activities required in preparation for a hunting trip. The items with salient loadings on this factor are:

. list preparations for hunting trip.
. list equipment for field trip.
. obtain hunting regulations and acts.
. describing basic principles of ballistics and trajectory.
. list procedures for safe, efficient field dressing for animals.
. define regulations that apply to field dressing.
. identify procedures for observing, recording and reporting unacceptable behaviour.

The cognitive processes that permeate this dimension involves mediational and motor processes. The performance types associated with the mediational process include information processing, problem-solving and decision-making. The performance type associated with the motor process is simple/discrete tasks and complex/continuous tasks. The specific examples of behaviours for the mediational process is itemizing, analyzing, choosing, estimating, planning. The specific examples for the motor process is

setting, pressing, moving, activating, adjusting, aligning, and tracking. The relatively low importance attached to most of the activities associated with this dimension would prescribe that the evaluation of performance does not require a high degree of proficiency and criteria for evaluation do not need to be stringent. The pass/fail cut-off could be set fairly low relative to other curriculum areas.

Factor 4 has tasks associated with legal aspects of hunting. The items with salient loadings on this factor are:

. identification of protected mammals of B.C.

. identify protected endangered birds.

. zone restrictions and bag limits.

. identify special licenses required.

. identify safe game targets.*

*This item could be interpreted as "permissable" game targets or as a "safe" target. The positioning on a factor would have depended upon interpretation by the field and therefore was not a clearly worded item.

This factor involves the perceptual and mediational processes. The performance types involve with perception are searching for and receiving information and identification of objects. The performance types associated with the mediational process are information processing and decision making. The specific examples of behaviour for the perceptual mode are observing, detecting, surveying, reading and scanning, discriminating, identification and locating. The specific examples of behaviour of the mediational process involve categorization, coding, itemizing, translating, analyzing, comparing and choosing.

The items loading on this dimension are provided with importance ratings that fall in the area of high importance. The average rating on these items are about 1.5 indicating a high importance attached to these functions. Instructors should make students well aware of these tasks and how to obtain information in connection with them. Criteria for performance evaluation should be high.

The fifth factor has task statements associated with safety loading on it. This "factor" has only three items loading on it:

. identification of safe discharge of firearms.

. demonstrate safe handling of firearms.

. list ten commandments of firearm safety.

The cognitive processes involved with the tasks on this factor are perceptual, mediational, communication and motor. The performance types associated with these are:

Perceptual

. identification, inspection, observing.

. locates.

Communication

. communicating, answers, advises, informs, indicates, instructs, requests and transmits.

Motor

. activates, closes, connects, moves, joins, disconnects, presses/sets, adjusts/aligns, synchronizes and tracks.

The high importance attached to the items on this factor indicate that a great deal of care and attention should be given to their instruction. The tasks loading on this dimension require checking, fine adjusting and if not carried out correctly can lead to disastrous consequences. These tasks require stringent criteria for pass/fail and should involve a great deal of practice elements.

The final factor has only two loadings that are salient. These are associated with hunting ethics:

. define hunter ethics.

. define outdoor ethics.

Both these items involve the mediational process and the performance type is information processing, problem solving and decision making. The specific examples of behaviour include categorization, translating, choosing, comparing, estimating and planning.

It is clear that the fifth and especially the sixth "factor" do not have enough items to measure reliably and would require a few more items to become replicable factors. These shortcomings are a reflection of the questionnaires and the workshop process in that these two domains could be mapped out in a more comprehensive manner. It is possible for workshop participants to generate more safety statements with regard to firearm handling and more statements on hunter ethics.

DISCUSSION

The use of a multivariate technique like factor analysis can provide useful information in the area of task analysis. The need for such a technique is readily appreciated when there are a large number of task statements and both qualitative and quantitative information is desired. In addition, the original set of statements can be reduced to a much smaller set which accounts for most of the reliable variance of the initial pool of task statements. This smaller set can then be used as operational representatives underlying the complete set of variables. If the domain of data can be hypothesized to have certain qualitative and quantitative distinctions, then this hypothesis can be tested by factor analysis. If the hypotheses are tenable, the various factors will represent the theoretically derived qualitative distinctions. If one variable is hypothesized to be more related to one factor than another this quantitative distinction can also be checked.

Other statistical procedures such as simple product-moment correlation of task statements with levels of job could yield valuable information regarding "core" tasks carried out throughout and specialized "modules" of tasks for certain job levels.

The use of the multivariate approach is necessary because where there are numerous variables it is difficult to examine any matrix of association indices for "intuitive" factors. The task simply becomes too great. The number of indices of association between each pair of variables in a set is equal to $V(V-1)/2$ where V is the number of variables. For example, a 50 variable problem would have 1,225 coefficients. Most of us find some difficulty in integrating 1,225 interrelationships by an intuitive analysis.

The purpose of this study was to use a factor analytic approach to analyse task data and validate a DACUM. The field-developed DACUM differed somewhat from the factors intuitively derived. In addition, it provided more information for curriculum development and instruction than the intuitive approach.

A major contribution of the present survey methodology is the identification of "core" competencies and specialized modules as practiced in the field. Using correlations between level of job categories and rating distributions on individual task statements it is possible to identify those tasks practiced by all and those unique to individual levels. In the simplest case, a two level category, e.g. administrator and practitioner, a non-significant correlation between this dichotomous grouping and a particular task would indicate that the task was carried out by both administrators and practitioners and would be a candidate for the "core" task statements. Assume the rating scales were 1= not at all important and 5= most important and the administrator was assigned a value of 2 and practitioner a 1. A significant positive correlation would indicate that task statement to be primarily important to administrators. In a similar way a significant negative correlation would indicate that task statement to be primarily associated with the practitioner. This procedure is a highly efficient way to obtain both reliable and valid data for the identification of specialized modules and "core" elements.

The use of other scales in conjunction with importance would also yield valuable curriculum design information. Some specific dimensions in

addition to importance which would be valuable to obtain responses on could be frequency, mental effort, manual dexterity and speed.

Assumptions and Limitations

1. The procedure assumes a linear model, i.e. some variables often called dependent variables or criteria are assumed to be a weighted combination of a set of factors. If non-linear relationships are involved no analysis within the linear model is truly adequate. However, if a non-linear relationship is expected the variable might be transformed so that the relationship between the derived variable and the factors is linear, Bottenberg and Ward, 1963, Kelly, Beggs and McNeil, 1969.

2. Responses from the field should be large enough to carry out the analysis. A ratio of five respondents to one item is desirable from a stability viewpoint. In addition, if it is essential that the findings are generalizable across geographic areas an examination of the adequacy of sampling in geographic areas would be required.

3. Only the importance dimension was examined and certain tasks may be very unimportant but done frequently or vice versa. This information is lost or not available when only an importance scale is used. Similarly, other scales could provide salient findings that an importance scale alone would not tap.

4. Hunter training in this study was not a multi-level occupation and thus identification of core and modules for levels was not necessary.

5. Items 5, 6, 7 and 8 of the demographics were not keypunched due to error in keypunching instructions and are not presented in this report.

Comparison and Implications

A comparison of the workshop produced DACUM and field-produced DACUM charts indicate a few areas of difference.

1. The identification of Birds and Mammals were separated out in the workshop DACUM as two distinct clusters. However, the field analysis indicates that one cluster containing both mammals and birds is more appropriate. This is due to these task statements correlating well, primarily because of similar variances on the importance ratings. The psychological processes involved in the identification of species is similar for both birds and mammals. The workshop differentiation into birds and mammals was an artificial partitioning based on classification of species rather than on actual cognitive requirements.

2. Some of the six clusters developed in the workshop are not "clean". In contrast to the clear distinction based on classification only between bird and animal clusters, there are a number of combination factors that seem to combine elements that essentially are unrelated. An example is the cluster "plan safe ethical field trips". A close examination of this cluster reveals items somewhat unrelated, e.g., defining hunter ethics, listing preparations for hunting trip, making up a survival kit and listing procedures for safe efficient field dressing for animals. Clearly on content alone some of these items would more appropriately belong to a survival or first aid cluster or to preparations for a hunting trip cluster.

The reason for these poor juxtapositioning of task statements is an inherent human inability to conceptually deal with the many inter-related task elements. This inability combined with the lack of a broad enough information base that is field oriented results in sub-optimal delineation of clusters and organization of curriculum.

These shortcomings can be easily overcome with the present technology. Not only is the process extremely inexpensive and relatively quick but it accomplishes a number of critical issues:

1. Optimizes the number of clusters of task statements.
2. Assigns task statements to clusters on a rational and optimal basis.
3. Field validates the DACUM chart.
4. Provides information on relative importance or other dimensions of task items.
5. Aids in the assignment of a taxonomic approach to task analysis.
6. Delineates "core" and modules in a valid way.
7. Allows for industry and field input into the curriculum process.
8. Is especially suitable in highly technical areas where certain task elements are critical to success.

The benefits of these considerations are several. The first is cost.

Costs would be substantially reduced. The workshop situation could be substantially reduced to generating initial task statements. Indeed, if other territories already have existing skill profile charts, the workshops are redundant and it is simply a matter to determine how each of the existing elements relate in B.C. and what differences there may be. Keypunching and computer services costs are negligible. The factor analytic run in this study cost about $4.00.

Time: Questionnaire preparation would take one to two days. Mailout and return mail responses would take about one month. Keypunching and data analysis about one week. Final chart preparation about one day.

Total actual work time - about two weeks.

Curriculum and Instructor Time economies would result from the identification of relatively important tasks.

The learning process would be enhanced because of the organization resulting from the analysis.

Field participation enhances the credibility of the finished product. It is both up-to-date and valid. The quality of graduate is enhanced.

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APPENDIX A

Covering Letter and Questionnaire

APPENDIX B

Frequency Distribution of Responses

to

Demographic and Task Statements

FILE NONAME (CREATION DATE = 11/16/81)

YRLICENS NO. OF YRS. I HELD BC HUNTING LICENSE

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
1-5 YEARS	1.	39	13.6	14.1	14.1
6-10 YEARS	2.	36	12.6	13.0	27.2
11-15 YEARS	3.	44	15.4	15.9	43.1
16-20 YEARS	4.	36	12.6	13.0	56.2
OVER 20 YEARS	5.	121	42.3	43.8	100.0
	0.	10	3.5	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	3.594	STD ERR	0.090	MEDIAN	4.028
MODE	5.000	STD DEV	1.495	VARIANCE	2.235
KURTOSIS	-1.189	SKEWNESS	-0.545	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		

VALID CASES 276 MISSING CASES 10

FILE NONAME (CREATION DATE = 11/16/81)

CLUBRELA OUTDOOR CLUB SPONSORING HUNTING

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
YES	1.	184	64.3	66.2	66.2
NO	2.	93	32.5	33.5	99.6
	3.	1	0.3	0.4	100.0
	0.	8	2.8	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.342	STD ERR	0.029	MEDIAN	1.255
MODE	1.000	STD DEV	0.483	VARIANCE	0.233
KURTOSIS	-1.161	SKEWNESS	0.768	RANGE	2.000
MINIMUM	1.000	MAXIMUM	3.000		
VALID CASES	278	MISSING CASES	8		

HUNTER TRAINING SURVEY 1981 11/16/81

FILE NONAME (CREATION DATE = 11/16/81)

CLUBNREL OUTDOOR CLUB NOT SPONSORING HUNTING

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
YES	1.	116	40.6	42.2	42.2
NO	2.	159	55.6	57.8	100.0
	0.	11	3.8	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.578	STD ERR	0.030	MEDIAN	1.635
MODE	2.000	STD DEV	0.495	VARIANCE	0.245
KURTOSIS	-1.913	SKEWNESS	-0.318	RANGE	1.000
MINIMUM	1.000	MAXIMUM	2.000		

VALID CASES 275 MISSING CASES 11

FILE NONAME (CREATION DATE = 11/16/81)

AGE AGE

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
21-25 YEARS	2.	9	3.1	3.2	3.2
26-30 YEARS	3.	29	10.1	10.2	13.4
31-40 YEARS	4.	99	34.6	34.9	48.2
41-50 YEARS	5.	67	23.4	23.6	71.8
OVER 50 YEARS	6.	80	28.0	28.2	100.0
	0.	2	0.7	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	4.634	STD ERR	0.065	MEDIAN	4.575
MODE	4.000	STD DEV	1.093	VARIANCE	1.194
KURTOSIS	-0.664	SKEWNESS	-0.297	RANGE	4.000
MINIMUM	2.000	MAXIMUM	6.000		
VALID CASES	284	MISSING CASES	2		

FILE NONAME (CREATION DATE = 11/16/81)

INJURED PROCEDURES HELPING INJURED PERSON

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	168	58.7	59.8	59.8
	2.	65	22.7	23.1	82.9
	3.	36	12.6	12.8	95.7
	4.	11	3.8	3.9	99.6
NOT IMPORTANT	5.	1	0.3	0.4	100.0
	0.	5	1.7	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.619	STD ERR	0.052	MEDIAN	1.336
MODE	1.000	STD DEV	0.879	VARIANCE	0.772
KURTOSIS	0.888	SKEWNESS	1.301	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	281	MISSING CASES	5		

FILE NONAME (CREATION DATE = 11/16/81)

DRESSING FIELD DRESSING FOR ANIMALS

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	96	33.6	34.0	34.0
	2.	85	29.7	30.1	64.2
	3.	68	23.8	24.1	88.3
	4.	30	10.5	10.6	98.9
NOT IMPORTANT	5.	3	1.0	1.1	100.0
	0.	4	1.4	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	2.145	STD ERR	0.062	MEDIAN	2.029
MODE	1.000	STD DEV	1.042	VARIANCE	1.086
KURTOSIS	-0.701	SKEWNESS	0.504	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	282	MISSING CASES	4		

FILE NONAME (CREATION DATE = 11/16/81)

HANDLING DEMONSTRATE SAFE HANDLING OF FIREARMS

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	277	96.9	98.2	98.2
	2.	4	1.4	1.4	99.6
NOT IMPORTANT	5.	1	0.3	0.4	100.0
	0.	4	1.4	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.028	STD ERR	0.016	MEDIAN	1.009
MODE	1.000	STD DEV	0.265	VARIANCE	0.070
KURTOSIS	182.273	SKEWNESS	12.733	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	282	MISSING CASES	4		

HUNTER TRAINING SURVEY 1981 11/16/81

FILE NONAME (CREATION DATE = 11/16/81)

DSMANTLE DISMANTLE & CLEAN FIREARM

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	103	36.0	36.5	36.5
	2.	78	27.3	27.7	64.2
	3.	69	24.1	24.5	88.7
	4.	25	8.7	8.9	97.5
NOT IMPORTANT	5.	7	2.4	2.5	100.0
	0.	4	1.4	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	2.131	STD ERR	0.065	MEDIAN	1.987
MODE	1.000	STD DEV	1.084	VARIANCE	1.175
KURTOSIS	-0.433	SKEWNESS	0.632	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	282	MISSING CASES	4		

FILE NONAME (CREATION DATE = 11/16/81)

HABITBRD ID HABITATS-DISTRIBUTION OF GAMEBIRDS

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	49	17.1	17.3	17.3
	2.	78	27.3	27.6	44.9
	3.	115	40.2	40.6	85.5
	4.	37	12.9	13.1	98.6
NOT IMPORTANT	5.	4	1.4	1.4	100.0
	0.	3	1.0	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	2.537	STD ERR	0.058	MEDIAN	2.626
MODE	3.000	STD DEV	0.972	VARIANCE	0.945
KURTOSIS	-0.588	SKEWNESS	-0.012	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	283	MISSING CASES	3		

HUNTER TRAINING SURVEY 1981 11/16/81

FILE NONAME (CREATION DATE = 11/16/81)

DSCHARGE ID SAFE DISCHARGE OF FIREARM

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	257	89.9	92.8	92.8
	2.	15	5.2	5.4	98.2
	3.	3	1.0	1.1	99.3
	4.	1	0.3	0.4	99.6
NOT IMPORTANT	5.	1	0.3	0.4	100.0
	0.	9	3.1	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.101	STD ERR	0.025	MEDIAN	1.039
MODE	1.000	STD DEV	0.422	VARIANCE	0.178
KURTOSIS	37.864	SKEWNESS	5.572	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	277	MISSING CASES	9		

FILE NONAME (CREATION DATE = 11/16/81)

MAMMALSP ID CHARACTERISTICS OF MAMMAL SPECIES

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	93	32.5	33.6	33.6
	2.	102	35.7	36.8	70.4
	3.	71	24.8	25.6	96.0
	4.	8	2.8	2.9	98.9
NOT IMPORTANT	5.	3	1.0	1.1	100.0
	0.	9	3.1	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	2.011	STD ERR	0.054	MEDIAN	1.946
MODE	2.000	STD DEV	0.899	VARIANCE	0.808
KURTOSIS	-0.027	SKEWNESS	0.582	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		

VALID CASES 277 MISSING CASES 9

HUNTER TRAINING SURVEY 1981 11/16/81

FILE NONAME (CREATION DATE = 11/16/81)

UNXBEHVR REPORTING UNACCEPTABLE BEHAVIOUR

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	119	41.6	42.8	42.8
	2.	87	30.4	31.3	74.1
	3.	61	21.3	21.9	96.0
	4.	8	2.8	2.9	98.9
NOT IMPORTANT	5.	3	1.0	1.1	100.0
	0.	8	2.8	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.881	STD ERR	0.055	MEDIAN	1.730
MODE	1.000	STD DEV	0.921	VARIANCE	0.849
KURTOSIS	0.104	SKEWNESS	0.796	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	278	MISSING CASES	8		

FILE NONAME (CREATION DATE = 11/16/81)

HYPOTHRM TREATMENT OF HYPOTHERMIA

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	173	60.5	62.2	62.2
	2.	71	24.8	25.5	87.8
	3.	29	10.1	10.4	98.2
	4.	5	1.7	1.8	100.0
	0.	8	2.8	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.518	STD ERR	0.045	MEDIAN	1.303
MODE	1.000	STD DEV	0.754	VARIANCE	0.568
KURTOSIS	0.919	SKEWNESS	1.314	RANGE	3.000
MINIMUM	1.000	MAXIMUM	4.000		
VALID CASES	278	MISSING CASES	8		

HUNTER TRAINING SURVEY 1981 11/16/81

FILE NONAME (CREATION DATE = 11/16/81)

HABITSPC HABITAT DISTRIBUTION-INDIVIDUAL SPECIES

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	36	12.6	12.9	12.9
	2.	73	25.5	26.2	39.1
	3.	119	41.6	42.7	81.7
	4.	48	16.8	17.2	98.9
NOT IMPORTANT	5.	3	1.0	1.1	100.0
	0.	7	2.4	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	2.674	STD ERR	0.056	MEDIAN	2.756
MODE	3.000	STD DEV	0.943	VARIANCE	0.890
KURTOSIS	-0.547	SKEWNESS	-0.161	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	279	MISSING CASES	7		

FILE NONAME (CREATION DATE = 11/16/81)

CMODSURV COMPONENTS OF OUTDOOR SURVIVAL

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	164	57.3	59.0	59.0
	2.	87	30.4	31.3	90.3
	3.	24	8.4	8.6	98.9
	4.	3	1.0	1.1	100.0
	0.	8	2.8	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.518	STD ERR	0.042	MEDIAN	1.348
MODE	1.000	STD DEV	0.699	VARIANCE	0.489
KURTOSIS	0.767	SKEWNESS	1.180	RANGE	3.000
MINIMUM	1.000	MAXIMUM	4.000		
VALID CASES	278	MISSING CASES	8		

FILE NONAME (CREATION DATE = 11/16/81)

MAMLTERM DEFINE COMMON MAMMAL TERMS

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	24	8.4	8.6	8.6
	2.	70	24.5	25.1	33.7
	3.	115	40.2	41.2	74.9
	4.	54	18.9	19.4	94.3
NOT IMPORTANT	5.	16	5.6	5.7	100.0
	0.	7	2.4	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	2.885	STD ERR	0.060	MEDIAN	2.896
MODE	3.000	STD DEV	1.004	VARIANCE	1.008
KURTOSIS	-0.323	SKEWNESS	0.060	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		

VALID CASES 279 MISSING CASES 7

FILE NONAME (CREATION DATE = 11/16/81)

FXMANBRD IDENTIFY EFFECT OF MAN ON BIRDS

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	61	21.3	21.9	21.9
	2.	90	31.5	32.3	54.1
	3.	82	28.7	29.4	83.5
	4.	41	14.3	14.7	98.2
NOT IMPORTANT	5.	5	1.7	1.8	100.0
	0.	7	2.4	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	2.423	STD ERR	0.062	MEDIAN	2.372
MODE	2.000	STD DEV	1.042	VARIANCE	1.087
KURTOSIS	-0.741	SKEWNESS	0.255	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		

VALID CASES 279 MISSING CASES 7

FILE NONAME (CREATION DATE = 11/16/81)

BUYFIREA ID PROCUEDURES FOR BUYING FIREARMS

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	79	27.6	28.3	28.3
	2.	69	24.1	24.7	53.0
	3.	80	28.0	28.7	81.7
	4.	37	12.9	13.3	95.0
NOT IMPORTANT	5.	14	4.9	5.0	100.0
	0.	7	2.4	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	2.419	STD ERR	0.070	MEDIAN	2.377
MODE	3.000	STD DEV	1.175	VARIANCE	1.381
KURTOSIS	-0.751	SKEWNESS	0.383	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	279	MISSING CASES	7		

FILE NONAME (CREATION DATE = 11/16/81)

HUNTETHC DEFINE HUNTER ETHICS

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	201	70.3	72.3	72.3
	2.	62	21.7	22.3	94.6
	3.	12	4.2	4.3	98.9
	4.	2	0.7	0.7	99.6
NOT IMPORTANT	5.	1	0.3	0.4	100.0
	0.	8	2.8	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.345	STD ERR	0.038	MEDIAN	1.192
MODE	1.000	STD DEV	0.633	VARIANCE	0.400
KURTOSIS	5.766	SKEWNESS	2.151	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	278	MISSING CASES	8		

FILE NONAME (CREATION DATE = 11/16/81)

PAODSURV ID POSITIVE ATTITUDE-OUTDOOR SURVIVAL

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	175	61.2	62.7	62.7
	2.	78	27.3	28.0	90.7
	3.	24	8.4	8.6	99.3
	4.	2	0.7	0.7	100.0
	0.	7	2.4	MISSING	100.0
	TOTAL	286	100.0	100.0	.

MEAN	1.473	STD ERR	0.041	MEDIAN	1.297
MODE	1.000	STD DEV	0.683	VARIANCE	0.466
KURTOSIS	0.806	SKEWNESS	1.259	RANGE	3.000
MINIMUM	1.000	MAXIMUM	4.000		
VALID CASES	279	MISSING CASES	7		

FILE NONAME (CREATION DATE = 11/16/81)

ODETHICS DEFINE OUTDOOR ETHICS

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	172	60.1	61.6	61.6
	2.	79	27.6	28.3	90.0
	3.	23	8.0	8.2	98.2
	4.	4	1.4	1.4	99.6
NOT IMPORTANT	5.	1	0.3	0.4	100.0
	0.	7	2.4	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.505	STD ERR	0.044	MEDIAN	1.311
MODE	1.000	STD DEV	0.739	VARIANCE	0.546
KURTOSIS	2.331	SKEWNESS	1.518	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	279	MISSING CASES	7		

FILE NONAME (CREATION DATE = 11/16/81)

BAGLIMIT ZONE RESTRICTIONS & BAG LIMITS

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	149	52.1	53.4	53.4
	2.	69	24.1	24.7	78.1
	3.	44	15.4	15.8	93.9
	4.	13	4.5	4.7	98.6
NOT IMPORTANT	5.	4	1.4	1.4	100.0
	0.	7	2.4	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.760	STD ERR	0.058	MEDIAN	1.436
MODE	1.000	STD DEV	0.976	VARIANCE	0.953
KURTOSIS	0.700	SKEWNESS	1.175	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	279	MISSING CASES	7		

FILE NONAME (CREATION DATE = 11/16/81)

KEYIDBRD APPLY KEYS TO IDENTIFICATION OF BIRDS

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	52	18.2	18.6	18.6
	2.	91	31.8	32.6	51.3
	3.	93	32.5	33.3	84.6
	4.	33	11.5	11.8	96.4
NOT IMPORTANT	5.	10	3.5	3.6	100.0
	0.	7	2.4	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	2.491	STD ERR	0.062	MEDIAN	2.462
MODE	3.000	STD DEV	1.038	VARIANCE	1.078
KURTOSIS	-0.390	SKEWNESS	0.325	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		

VALID CASES 279 MISSING CASES 7

FILE NONAME (CREATION DATE = 11/16/81)

GAMEBIRD IDENTIFY & NAME GAMEBIRDS OF B. C.

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	83	29.0	29.6	29.6
	2.	92	32.2	32.9	62.5
	3.	77	26.9	27.5	90.0
	4.	24	8.4	8.6	98.6
NOT IMPORTANT	5.	4	1.4	1.4	100.0
	0.	6	2.1	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	2.193	STD ERR	0.060	MEDIAN	2.120
MODE	2.000	STD DEV	1.005	VARIANCE	1.009
KURTOSIS	-0.497	SKEWNESS	0.460	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	280	MISSING CASES	6		

HUNTER TRAINING SURVEY 1981 11/16/81

FILE NONAME (CREATION DATE = 11/16/81)

REGODACT ID REGULATIONS-OUTDOOR ACTIVITIES

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	103	36.0	37.3	37.3
	2.	88	30.8	31.9	69.2
	3.	71	24.8	25.7	94.9
	4.	12	4.2	4.3	99.3
NOT IMPORTANT	5.	2	0.7	0.7	100.0
	0.	10	3.5	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.993	STD ERR	0.056	MEDIAN	1.898
MODE	1.000	STD DEV	0.934	VARIANCE	0.873
KURTOSIS	-0.439	SKEWNESS	0.554	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	276	MISSING CASES	10		

HUNTER TRAINING SURVEY 1981 11/16/81

FILE NONAME (CREATION DATE = 11/16/81)

BIRDTERM DEFINE BIRD RELATED TERMS

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	23	8.0	8.3	8.3
	2.	49	17.1	17.6	25.9
	3.	126	44.1	45.3	71.2
	4.	69	24.1	24.8	96.0
NOT IMPORTANT	5.	11	3.8	4.0	100.0
	0.	8	2.8	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	2.986	STD ERR	0.057	MEDIAN	3.032
MODE	3.000	STD DEV	0.957	VARIANCE	0.917
KURTOSIS	-0.145	SKEWNESS	-0.269	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	278	MISSING CASES	8		

FILE NONAME (CREATION DATE = 11/16/81)

ENMYSURV IDENTIFY SEVEN ENEMIES OF SURVIVAL

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	149	52.1	54.2	54.2
	2.	89	31.1	32.4	86.5
	3.	30	10.5	10.9	97.5
	4.	7	2.4	2.5	100.0
	0.	11	3.8	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.618	STD ERR	0.047	MEDIAN	1.423
MODE	1.000	STD DEV	0.780	VARIANCE	0.609
KURTOSIS	0.569	SKEWNESS	1.110	RANGE	3.000
MINIMUM	1.000	MAXIMUM	4.000		
VALID CASES	275	MISSING CASES	11		

HUNTER TRAINING SURVEY 1981 11/16/81

FILE NONAME (CREATION DATE = 11/16/81)

BALISTIC BASIC PRINCIPLES OF BALLISTICS & TRAJ.

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	60	21.0	21.6	21.6
	2.	82	28.7	29.5	51.1
	3.	81	28.3	29.1	80.2
	4.	45	15.7	16.2	96.4
NOT IMPORTANT	5.	10	3.5	3.6	100.0
	0.	8	2.8	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	2.507	STD ERR	0.066	MEDIAN	2.463
MODE	2.000	STD DEV	1.107	VARIANCE	1.226
KURTOSIS	-0.750	SKEWNESS	0.263	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	278	MISSING CASES	8		

FILE NONAME (CREATION DATE = 11/16/81)

TENCOMND TEN COMMANDMENTS OF FIREARM SAFETY

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	215	75.2	77.6	77.6
	2.	46	16.1	16.6	94.2
	3.	14	4.9	5.1	99.3
	4.	1	0.3	0.4	99.6
NOT IMPORTANT	5.	1	0.3	0.4	100.0
	0.	9	3.1	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.292	STD ERR	0.037	MEDIAN	1.144
MODE	1.000	STD DEV	0.612	VARIANCE	0.374
KURTOSIS	6.872	SKEWNESS	2.413	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	277	MISSING CASES	9		

FILE NONAME (CREATION DATE = 11/16/81)

FIRSTAID ID SURVIVAL FIRST AID PROCEDURES

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	143	50.0	60.9	60.9
	2.	60	21.0	25.5	86.4
	3.	29	10.1	12.3	98.7
	4.	3	1.0	1.3	100.0
	0.	51	17.8	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.540	STD ERR	0.049	MEDIAN	1.322
MODE	1.000	STD DEV	0.758	VARIANCE	0.574
KURTOSIS	0.369	SKEWNESS	1.170	RANGE	3.000
MINIMUM	1.000	MAXIMUM	4.000		

VALID CASES 235 MISSING CASES 51

FILE NONAME (CREATION DATE = 11/16/81)

LEGLNLGL IDENTIFY LEGAL & NON-LEGAL SPECIES

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	182	63.6	65.7	65.7
	2.	66	23.1	23.8	89.5
	3.	23	8.0	8.3	97.8
	4.	4	1.4	1.4	99.3
NOT IMPORTANT	5.	2	0.7	0.7	100.0
	0.	9	3.1	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.477	STD ERR	0.046	MEDIAN	1.261
MODE	1.000	STD DEV	0.769	VARIANCE	0.591
KURTOSIS	3.421	SKEWNESS	1.790	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	277	MISSING CASES	9		

FILE NONAME (CREATION DATE = 11/16/81)

REGFDRES DEFINE REGULATIONS-FIELD DRESSING

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	89	31.1	32.4	32.4
	2.	86	30.1	31.3	63.6
	3.	68	23.8	24.7	88.4
	4.	28	9.8	10.2	98.5
NOT IMPORTANT	5.	4	1.4	1.5	100.0
	0.	11	3.8	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	2.171	STD ERR	0.063	MEDIAN	2.064
MODE	1.000	STD DEV	1.041	VARIANCE	1.084
KURTOSIS	-0.591	SKEWNESS	0.513	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		

VALID CASES 275 MISSING CASES 11

FILE NONAME (CREATION DATE = 11/16/81)

SPECLICN IDENTIFY SPECIAL LICENSES REQUIRED

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	89	31.1	37.2	37.2
	2.	71	24.8	29.7	66.9
	3.	66	23.1	27.6	94.6
	4.	10	3.5	4.2	98.7
NOT IMPORTANT	5.	3	1.0	1.3	100.0
	0.	47	16.4	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	2.025	STD ERR	0.062	MEDIAN	1.930
MODE	1.000	STD DEV	0.965	VARIANCE	0.932
KURTOSIS	-0.336	SKEWNESS	0.571	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		

VALID CASES 239 MISSING CASES 47

FILE NONAME (CREATION DATE = 11/16/81)

SURVLKIT MAKE UP SURVIVAL KIT

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	96	33.6	34.2	34.2
	2.	98	34.3	34.9	69.0
	3.	65	22.7	23.1	92.2
	4.	22	7.7	7.8	100.0
	0.	5	1.7	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	2.046	STD ERR	0.056	MEDIAN	1.954
MODE	2.000	STD DEV	0.942	VARIANCE	0.887
KURTOSIS	-0.764	SKEWNESS	0.476	RANGE	3.000
MINIMUM	1.000	MAXIMUM	4.000		
VALID CASES	281	MISSING CASES	5		

HUNTER TRAINING SURVEY 1981 11/16/81

FILE NONAME (CREATION DATE = 11/16/81)

EQPFTRIP LIST EQUIPMENT FOR FIELD TRIP

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	61	21.3	21.8	21.8
	2.	84	29.4	30.0	51.8
	3.	96	33.6	34.3	86.1
	4.	34	11.9	12.1	98.2
NOT IMPORTANT	5.	5	1.7	1.8	100.0
	0.	6	2.1	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	2.421	STD ERR	0.061	MEDIAN	2.440
MODE	3.000	STD DEV	1.016	VARIANCE	1.033
KURTOSIS	-0.650	SKEWNESS	0.195	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		

VALID CASES 280 MISSING CASES 6

FILE NONAME (CREATION DATE = 11/16/81)

PRODSURV PRACTICE COMPONENTS OF OUTDOOR SURVIVAL

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	49	17.1	17.6	17.6
	2.	94	32.9	33.8	51.4
	3.	84	29.4	30.2	81.7
	4.	40	14.0	14.4	96.0
NOT IMPORTANT	5.	11	3.8	4.0	100.0
	0.	8	2.8	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	2.532	STD ERR	0.064	MEDIAN	2.457
MODE	2.000	STD DEV	1.063	VARIANCE	1.131
KURTOSIS	-0.507	SKEWNESS	0.332	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	278	MISSING CASES	8		

FILE NONAME (CREATION DATE = 11/16/81)

IDFIREAR IDENTIFY & CLASSIFY FIREARMS

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	107	37.4	38.1	38.1
	2.	86	30.1	30.6	68.7
	3.	70	24.5	24.9	93.6
	4.	16	5.6	5.7	99.3
NOT IMPORTANT	5.	2	0.7	0.7	100.0
	0.	5	1.7	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	2.004	STD ERR	0.057	MEDIAN	1.890
MODE	1.000	STD DEV	0.962	VARIANCE	0.925
KURTOSIS	-0.504	SKEWNESS	0.575	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		

VALID CASES 281 MISSING CASES 5

FILE NONAME (CREATION DATE = 11/16/81)

SAFEGAME IDENTIFY SAFE GAME TARGETS

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	200	69.9	72.7	72.7
	2.	40	14.0	14.5	87.3
	3.	27	9.4	9.8	97.1
	4.	5	1.7	1.8	98.9
NOT IMPORTANT	5.	3	1.0	1.1	100.0
	0.	11	3.8	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.440	STD ERR	0.050	MEDIAN	1.188
MODE	1.000	STD DEV	0.828	VARIANCE	0.685
KURTOSIS	3.862	SKEWNESS	2.020	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	275	MISSING CASES	11		

FILE NONAME (CREATION DATE = 11/16/81)

ENDANGER IDENTIFY PROTECTED-ENDANGERED BIRDS

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	162	56.6	57.9	57.9
	2.	73	25.5	26.1	83.9
	3.	39	13.6	13.9	97.9
	4.	5	1.7	1.8	99.6
NOT IMPORTANT	5.	1	0.3	0.4	100.0
	0.	6	2.1	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.607	STD ERR	0.049	MEDIAN	1.364
MODE	1.000	STD DEV	0.818	VARIANCE	0.669
KURTOSIS	0.783	SKEWNESS	1.194	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		

VALID CASES 280 MISSING CASES 6

FILE NONAME (CREATION DATE = 11/16/81)

REGWLDLF REGULATIONS-PRIN. WILDLIFE MANAGEMENT

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	102	35.7	36.6	36.6
	2.	99	34.6	35.5	72.0
	3.	62	21.7	22.2	94.3
	4.	14	4.9	5.0	99.3
NOT IMPORTANT	5.	2	0.7	0.7	100.0
	0.	7	2.4	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.978	STD ERR	0.055	MEDIAN	1.879
MODE	1.000	STD DEV	0.925	VARIANCE	0.856
KURTOSIS	-0.214	SKEWNESS	0.647	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	279	MISSING CASES	7		

FILE NONAME (CREATION DATE = 11/16/81)

FXMANMAM EFFECT OF MAN ON MAMMALS

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	89	31.1	32.2	32.2
	2.	94	32.9	34.1	66.3
	3.	68	23.8	24.6	90.9
	4.	23	8.0	8.3	99.3
NOT IMPORTANT	5.	2	0.7	0.7	100.0
	0.	10	3.5	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	2.112	STD ERR	0.059	MEDIAN	2.021
MODE	2.000	STD DEV	0.979	VARIANCE	0.958
KURTOSIS	-0.566	SKEWNESS	0.499	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	276	MISSING CASES	10		

FILE NONAME (CREATION DATE = 11/16/81)

HUNTREGU OBTAIN HUNTING REGULATIONS & ACTS

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	150	52.4	54.2	54.2
	2.	67	23.4	24.2	78.3
	3.	45	15.7	16.2	94.6
	4.	12	4.2	4.3	98.9
NOT IMPORTANT	5.	3	1.0	1.1	100.0
	0.	9	3.1	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.740	STD ERR	0.057	MEDIAN	1.423
MODE	1.000	STD DEV	0.954	VARIANCE	0.910
KURTOSIS	0.588	SKEWNESS	1.146	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	277	MISSING CASES	9		

FILE NONAME (CREATION DATE = 11/16/81)

SFDSCHRG DEMONSTRATE SAFE DISCHARGE OF FIREARMS

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	196	68.5	71.8	71.8
	2.	49	17.1	17.9	89.7
	3.	19	6.6	7.0	96.7
	4.	7	2.4	2.6	99.3
NOT IMPORTANT	5.	2	0.7	0.7	100.0
	0.	13	4.5	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.425	STD ERR	0.048	MEDIAN	1.196
MODE	1.000	STD DEV	0.792	VARIANCE	0.628
KURTOSIS	4.249	SKEWNESS	2.082	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	273	MISSING CASES	13		

FILE NONAME (CREATION DATE = 11/16/81)

PRTCMAML IDENTIFY PROTECTED MAMMALS OF B.C.

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	153	53.5	55.0	55.0
	2.	76	26.6	27.3	82.4
	3.	39	13.6	14.0	96.4
	4.	8	2.8	2.9	99.3
NOT IMPORTANT	5.	2	0.7	0.7	100.0
	0.	8	2.8	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.669	STD ERR	0.052	MEDIAN	1.408
MODE	1.000	STD DEV	0.874	VARIANCE	0.764
KURTOSIS	0.992	SKEWNESS	1.221	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	278	MISSING CASES	8		

FILE NONAME (CREATION DATE = 11/16/81)

PREPHUNT LIST PREPARATIONS FOR HUNTING TRIP

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	63	22.0	22.7	22.7
	2.	93	32.5	33.5	56.1
	3.	88	30.8	31.7	87.8
	4.	28	9.8	10.1	97.8
NOT IMPORTANT	5.	6	2.1	2.2	100.0
	0.	8	2.8	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	2.356	STD ERR	0.060	MEDIAN	2.317
MODE	2.000	STD DEV	1.009	VARIANCE	1.017
KURTOSIS	-0.439	SKEWNESS	0.345	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	278	MISSING CASES	8		

FILE NONAME (CREATION DATE = 11/16/81)

KEYIDMAM APPLY KEY-IDENTIFICATION OF MAMMALS

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	80	28.0	28.8	28.8
	2.	86	30.1	30.9	59.7
	3.	83	29.0	29.9	89.6
	4.	20	7.0	7.2	96.8
NOT IMPORTANT	5.	9	3.1	3.2	100.0
	0.	8	2.8	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	2.252	STD ERR	0.063	MEDIAN	2.186
MODE	2.000	STD DEV	1.052	VARIANCE	1.106
KURTOSIS	-0.249	SKEWNESS	0.532	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		

VALID CASES 278 MISSING CASES 8

FILE NONAME (CREATION DATE = 11/16/81)

IDGUNPRT IDENTIFY FIREARM PARTS

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	70	24.5	25.3	25.3
	2.	73	25.5	26.4	51.6
	3.	91	31.8	32.9	84.5
	4.	38	13.3	13.7	98.2
NOT IMPORTANT	5.	5	1.7	1.8	100.0
	0.	9	3.1	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	2.404	STD ERR	0.064	MEDIAN	2.438
MODE	3.000	STD DEV	1.064	VARIANCE	1.133
KURTOSIS	-0.844	SKEWNESS	0.189	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		

VALID CASES 277 MISSING CASES 9

FILE NONAME (CREATION DATE = 11/16/81)

REGUTERM DEFINE TERMS USED IN REGULATIONS

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	107	37.4	39.5	39.5
	2.	97	33.9	35.8	75.3
	3.	57	19.9	21.0	96.3
	4.	9	3.1	3.3	99.6
NOT IMPORTANT	5.	1	0.3	0.4	100.0
	0.	15	5.2	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.893	STD ERR	0.053	MEDIAN	1.794
MODE	1.000	STD DEV	0.873	VARIANCE	0.763
KURTOSIS	-0.271	SKEWNESS	0.647	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	271	MISSING CASES	15		

FILE NONAME (CREATION DATE = 11/16/81)

FIREAMMO SELECT FIREARM & AMMUNITION FOR GAME

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
VERY IMPORTANT	1.	127	44.4	47.2	47.2
	2.	86	30.1	32.0	79.2
	3.	41	14.3	15.2	94.4
	4.	13	4.5	4.8	99.3
NOT IMPORTANT	5.	2	0.7	0.7	100.0
	0.	17	5.9	MISSING	100.0
	TOTAL	286	100.0	100.0	

MEAN	1.799	STD ERR	0.056	MEDIAN	1.587
MODE	1.000	STD DEV	0.921	VARIANCE	0.848
KURTOSIS	0.429	SKEWNESS	1.016	RANGE	4.000
MINIMUM	1.000	MAXIMUM	5.000		
VALID CASES	269	MISSING CASES	17		